Low-Carbon Development in Latin America and the Caribbean: Evolution, experiences and challenges

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Summary

The current development model of Latin America and the Caribbean is based on extractive industries and the expansion of agribusiness, both of which are accompanied by a range of often negative environmental, economic and social impacts.

As of 2013, Venezuela is one of the world's top producers and exporters of crude oil – responsible for some 298 thousand million barrels, 17.7% of the world total.[1] Coal is extensively mined in Colombia, aluminium in Brazil and Argentina, and Peru, Mexico, Brazil and Chile are among the top gold-producing nations globally.[2] Brazil, meanwhile, has more arable land than any other country on earth, which it uses to farm soya beans, maize, cotton and beef, among other things.

Such a development model is simply not conducive to low-carbon economic development. Although there is limited recognition of this among stakeholders in the region, there is some evidence that countries are seeking a new direction.

For our local partner organisations in Latin America and the Caribbean, energy is not considered to be 'just a commodity', but rather a human right. It's argued that realising such a right, by accessing sustainable and low-carbon energy, is harder (and therefore should be prioritised) for the rural poor and women, in particular. However, a number of factors affect the development of renewable energy and energy efficiency in Latin America and the Caribbean, including an absence of political will on the part of governments, which is often combined with a lack of technical knowledge that hampers sustainable development in the energy sector and reinforces the market power and dominance exercised by electricity, gas and oil companies.

Positive steps were taken at a global level at United Nations (UN) Secretary-General Ban Ki-moon's Climate Summit in New York in September 2014. At the summit, countries took major pledges on climate, climate finance and forestry, as part of the ongoing process that will take leaders towards an ambitious global climate agreement, scheduled to be reached in Paris, in December 2015.

The sustainability of low-carbon development plans throughout the region is dependent on the reduction of energy consumption using energy efficiency and energy saving measures, development of sustainable renewable energy and the strengthening of governments' institutional and technical capacity. In order to achieve this and to overcome challenges, we believe that a 'people-centred' approach to reduce energy consumption, which is inclusive and delivers the energy needs of the energy poor, is required. Such an approach must incorporate greater involvement of the private sector, and more pro-active dialogue between the public and private sectors, including civil society.

'Climate change resilience must be considered in its multidimensionality, from the development of technical capacity in order to face the challenge of sustainable energy, to the construction of a healthy social structure, strengthened by values such as solidarity, respect and mutual recognition. "Resilience" means developing a wider vision, one that redefines "development" in times of global changes'

Elizabeth Peredo, executive director, Fundación Solon, our partner in Bolivia

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Introduction

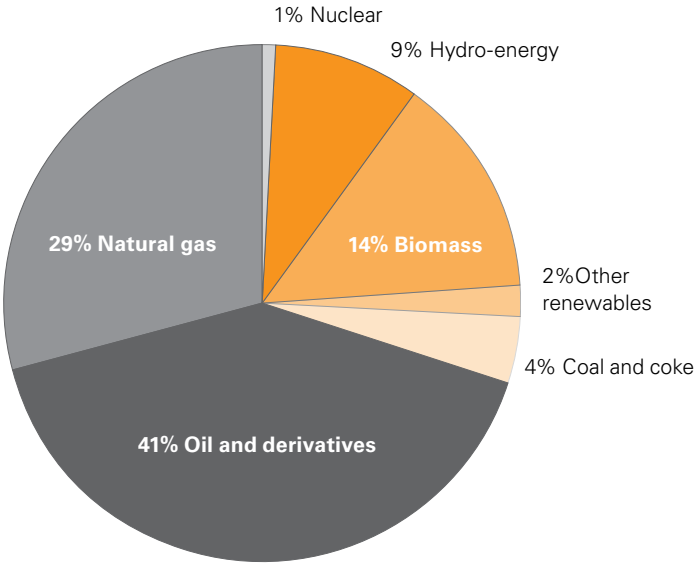
It's time for Latin America and the Caribbean – a region on the front line of resource shortages and changing climates – to move towards a more sustainable, equitable development based on low-carbon energy.

Despite the incredible diversity of the region, the wide availability of natural resources has resulted in a development model based on the extraction of these (through mining, oil and gas, and forestry industries) and the expansion of agribusiness, both of which are accompanied by a range of environmental, economic and social impacts.

The economic growth of Latin America and the Caribbean is estimated to be 3.5% of GDP and underpinned by the strong performance of a primary-export model that has flourished over the last decade under a sustained increase in commodity prices.[3] This fact begins to explain why governments in the region still promote both public and private large-scale, carbon-intensive investment. Yet the increase in regional economic output has been accompanied by a substantial rise in energy consumption, primarily of fossil fuels (see Figures 1 and 2).

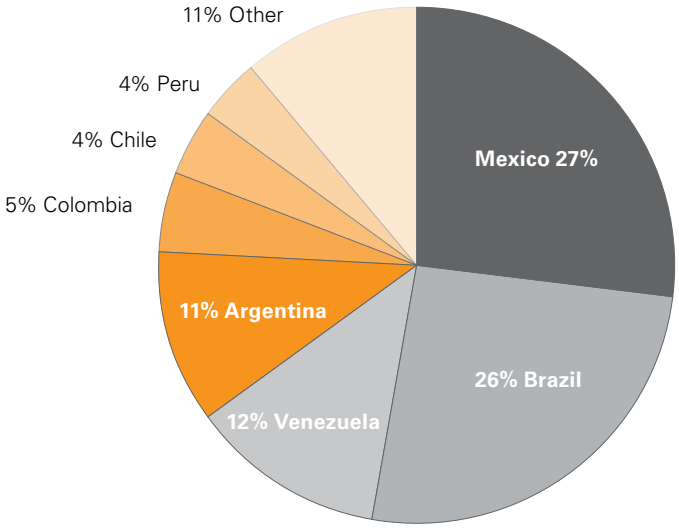
Research commissioned by Christian Aid[4] found that such a development model is simply not conducive to low-carbon development.[5] The projections of Latin America and the Caribbean's future emissions stand in direct opposition to the global climate change goals currently being discussed in international negotiations, which aim to limit the global increase in temperature to 2°C by cutting the concentration of greenhouse gases (GHGs) in the atmosphere.[6] Our research suggests that there is some limited recognition in the region that economic growth depends too heavily on fossil fuel consumption, and that countries are seeking a new direction, which consumes less or lower-carbon forms of energy, and positive solutions based on the needs of the most affected people. It also provides evidence that illustrates the challenges of changing energy consumption patterns.

Figure 1
Latin America and the Caribbean's energy matrix



Source: Energy-Economic Information Systems (SIEE) – Latin American Energy Organisation (OLADE), 2013 (Data 2011)[7]

Figure 2
Latin America and the Caribbean's regional greenhouse gas emissions distribution



Source: Prepared by Practical Action, Latin America, using information from the World Bank Database, data.worldbank.org[8]

Energy poverty

In Latin America and the Caribbean, while poverty has decreased for a variety of reasons, including growth of the middle class,[9] inequality continues to increase and the most vulnerable population (those people with incomes between $4 and $10 a day) has also risen slightly, from 35% in 2000 to 38% in 2012.[10] One way to address that inequality is to build a regional energy policy based on a sustainable approach that promotes diversification of types of energy consumed using existing resources, instead of promoting greater consumption.

In many countries in Latin America and the Caribbean, such as Peru, the population claims the right to acquire affordable, clean energy.[11] This has become evident in recent years through increased social protests against hydrocarbon and gas industry activity. Civil society groups believe such activity has exacerbated environmental problems, while emphasis on gas exports has caused shortages for local markets.

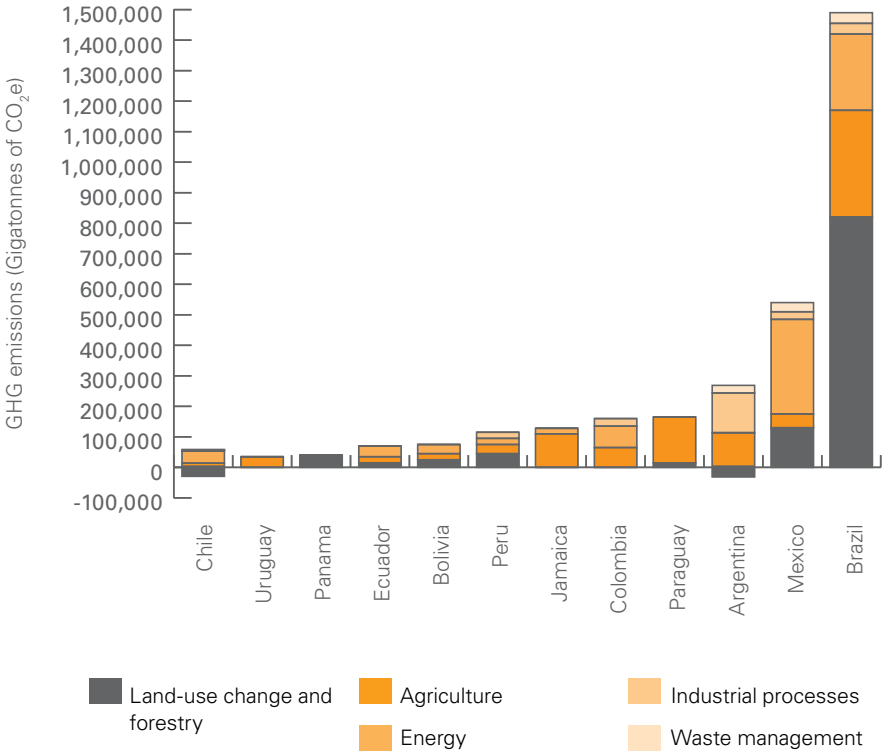
Ensuring equal access to clean energy for all throughout the region could help greatly in the fight against extreme poverty for vulnerable people, who are typically based in rural areas, and who currently pay more for low-quality energy than those living in urban areas. By enabling access to sustainable forms of energy, it is possible to reduce a family's carbon footprint while improving their living conditions – a double win!

In countries in Latin America and the Caribbean, per capita energy consumption remains low compared to levels in developed countries, yet there are still around 34 million people regionally who lack access to electricity.[12] In countries

such as Haiti, poverty and inequality force a large part of the population to rely on firewood or charcoal as the main source of energy. This practice has led to severe deforestation that undermines the country's resilience to climate change. As seen in Figure 3, the main regional source of GHG is land-use change and forestry (47%), followed by energy (22%), agriculture (20%) and waste (3%).[13] Land-use change and forestry is increasing as deforestation rates rise, particularly in the Amazon rainforest, which is shared by Brazil, Peru, and to a lesser extent Ecuador, Colombia, Venezuela, Suriname, Guyana, French Guyana and Bolivia. It is estimated that between 2000 and 2010, 6% of the Amazon rainforest was deforested.[14]

There is also much evidence of **gender inequality** in relation to energy use. This can be seen particularly in rural areas, where there is, for example, a high incidence of cooking-related diseases, such as chronic lung disease, which affect women disproportionately. The provision of renewable energy, coupled with efforts to challenge and change traditional gender roles, can play a crucial role in freeing up women's time and productive capacity. In Central America, some progress has been made on this: Guatemala, Honduras, El Salvador and Nicaragua have launched the **Regional Gender and Energy Network**, an initiative that seeks to promote equal access to sustainable energy for all through influencing government policy.

Figure 3
Largest greenhouse gas emitters by source



Source: Climate Change and Development in Latin America and the Caribbean, United Nations Economic Commission for Latin America and the Caribbean (ECLAC), 2009.[15]

Linking gender inequality and energy

The link between gender inequality and energy is particularly evident when considering the impact of energy projects, such as large-scale hydropower plants, on women. Our Brazilian partner the **Movement of People Affected by Dams (MAB)**, together with UN Women, carried out a programme of participatory assessments with women from communities affected by dams in the state of Rondônia. This showed that with the arrival of the dams, women faced even fewer job opportunities, as they were displaced from their homes and land to urban areas where no provision had been made for their employment.[16] The participatory assessments also found that women were more likely to be excluded than men from decision-making processes relating to their development and as a result were given the status in the study of 'unrecognised affected person'. Overall, the study found that women were the main victims of impoverishment and marginalisation arising from the planning, implementation and commissioning of the dams, yet also held the least influence over these processes.[17]

Micro and small hydro facilities

In contrast to the problems created by large-scale hydropower plants, **micro and small hydropower facilities** have generally been acknowledged as successful. For example, in Guatemala, our partner organisation the **Madre Selva Collective** has implemented community-based, small-scale hydropower plants that benefit indigenous communities. The projects are widely accepted by the population because they are not accompanied by any negative environmental or economic effects, and instead bring a number of benefits.

Renewable energy sources and low-carbon growth potential

The introduction of clean technology has had both positive and negative effects across the region, and it's important to acknowledge the latter.

Examples of negative experiences include the implementation of large-scale hydropower and biofuel facilities that result in major environmental and social problems and a net increase in GHG emissions. In Brazil, for example, the establishment of large hydroelectric plants has led to the deforestation of the Amazon rainforest and displacement of indigenous and Afro-descendent communities.

Positive experiences include the installation of small-scale hydropower facilities that have demonstrably improved living conditions in small rural communities in the region.

As global reserves of fossil fuels are depleted, first generation biofuels have emerged in Latin America and the Caribbean as an opportunity for countries to promote a new source of clean energy that can be produced locally, thus reducing a country's dependence on imported oil, improving energy security and fostering economic competitiveness.

To an extent, biofuels do offer a cleaner solution to fossil fuels. However, the increased demand for biofuels is accompanied by a rise in large-scale land acquisitions by companies, often without prior consultation with affected communities, which is threatening poor people's rights and ability to produce enough food to eat. This is especially the case in Colombia, Brazil, Peru, Bolivia and, increasingly, also in Central America.

Latin America and the Caribbean has untapped low-carbon potential in renewable energy sources (RES), including hydropower, solar, wind, geothermal, marine and biomass, yet public institutions struggle to implement policies and programmes involving RES and energy efficiency at a national level.

One challenge to greater low-carbon development is that there is a low level of private sector involvement, and a lack of dialogue between the public and private sectors. Some civil society organisations believe that in order to improve the region's sustainability, national governments should be looking at how to make energy consumption more efficient within current parameters, rather than promoting greater consumption while tapping into more renewable energy.

Ecostoves in Nicaragua

In Nicaragua, there have been several projects involving 'ecostoves' – improved cookers that promote the more efficient use of firewood. One of the most successful was a project by our partner **Centro Humboldt**, which delivered 367 ecostoves to 65 poor rural communities.

The improved stoves provided multiple benefits for communities, especially for women and children, who previously suffered adverse effects from the smoke of the traditional stoves, and who had to invest time collecting larger amounts of firewood each day.

Under the project, the reduced volume of firewood needed to run the ecostoves meant that an estimated area of 247,640 m^2, or approximately 35 football pitches, was saved from deforestation; and it is thought to have prevented GHG emissions of 4,598 total carbon dioxide (CO_2).

The project won several awards, including the Equator Prize at the 2012 UN Conference on Sustainable Development, known as Rio+20.

Carbon markets are not the answer

Carbon markets are created from the trading of carbon emission allowances to encourage or help countries and companies to limit their CO_2 emissions. Although presented as a vital solution to climate change – as creating a market and putting a price on carbon emissions can deliver emissions cuts more efficiently than direct regulation – they have failed to deliver change on the scale needed.

In Latin America and the Caribbean, the Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+) initiative is a carbon market mechanism intended to provide an economic incentive for developing countries to pursue low-carbon development.[18] Under the initiative, countries are financially compensated to reduce their carbon emissions, leave forests alone and support conservation, but putting this into practice is not always easy.

The international processes for driving the scheme are complex, while the interests of the various stakeholders are multiple and sometimes at odds with one another. The initiative has been challenged on the grounds that allocating a price to forest lands with the aim of protecting them can actually encourage their appropriation by large companies, thus affecting those local communities dependent upon the land. Also, carbon markets are failing, and the price of carbon credits is extremely low.

REDD+ was conceived as an inclusive, participatory and community-based initiative, to allow local communities to manage conservation projects and distribute any benefits directly among themselves. However, it is feared that it could, in effect, be promoting the 'commodification' of nature, accelerating the destruction of forests and harming biodiversity and the livelihoods of local communities.[19]

An alternative means of tackling deforestation emerged at the UN Climate Summit in New York in September 2014, in the guise of the **New York Declaration on Forests.** The declaration, which grew out of dialogue between governments, the private sector and civil society, is a non-legally binding political commitment to at 'least halve the rate of loss of natural forests globally by 2020 and strive to end natural forest loss by 2030'.[20]

The Rainforest Foundation states that around 150,000km^2 of tropical rainforest, equivalent to the size of England and Wales, is destroyed every year.[21] Preventing this practice, would, according to the UN, cut between 4.5 and 8.8 billion tonnes of CO_2, or 10-20% of global emissions, annually.[22] Meeting the New York Declaration's zero deforestation goal in 2030 would cut more carbon than removing all cars, buses and planes from the US, China and India combined, according to the World Resources Institute.[23]

However, a major anomaly with the New York Declaration is that Brazil – one of the world's largest rainforest nations – is not a signatory to this voluntary declaration. This situation arose because the country was not fully involved in the declaration's establishment, not necessarily because it disagreed with its content.

> **'Carbon markets do not reduce carbon emissions but instead generate greater inequality, as companies that can afford to buy carbon credits keep releasing GHG emissions'**
>
> **Elizabeth Peredo, Fundación Solon**

Financing low-carbon development

At the UN Climate Summit, some countries in Latin America and the Caribbean confirmed existing climate pledges. Mexico stated that a third of its power would come from renewables by 2018, Nicaragua said it is on track to meet its goal of generating 90% of its power from renewables by 2020, Costa Rica stated it planned to generate 100% of its energy from renewables by 2016, while Chile expressed its aim to get 45% of its energy from renewables by 2025.[24]

However, promoting energy efficiency measures, energy conservation and the use of renewable energy requires significant investments, which are often far greater than many countries in the region can afford. This is the reason why low-carbon development in Latin America and the Caribbean requires funding from different sources, not only from national governments, but also from the private sector, multilateral banks and developed countries.

Government funding for low-carbon projects may be achieved through investment from countries' own economic resources. This could be by means of incentives to facilitate private investment or through laws that regulate compulsory generation targets from renewable sources, such as requiring the installation of solar thermal systems in new buildings or setting compulsory renewable share targets for power generation companies. Greater finance for renewable energy projects could also come from multilateral banks. Some 20

multilateral funds operating in Latin America and the Caribbean are involved in climate finance, yet financial resources are still inadequate and the region needs to tackle this by actively promoting the benefits of renewable energies to all stakeholders, including the national and international private sectors.

As things stand, countries in the region remain reliant on the contributions of developed countries in technology, professional and technical training, and financial resources.

One existing initiative to provide the required economic capital is the Green Climate Fund (GCF). This was launched in 2010, during the 16th session of the Conference of the Parties (COP16) to the United Nations Framework Convention on Climate Change (UNFCCC) in Cancun, Mexico. It aimed to gather financial resources from developed countries to help the developing world to mitigate and adapt to the impact of climate change.

At the UN Climate Summit, some countries made new pledges to the GCF totalling $2.3bn.[25] However, much more must still be pledged to deliver the target provision of $15bn in capital for the GCF by the time COP21 is held in Paris in 2015, and to achieve the $100bn annual fund that world governments have pledged to establish by 2020.

This year's Climate Summit also provided the backdrop for a variety of private sector initiatives to deliver global climate financing. For example, the philanthropic Rockefeller Brothers Fund, created by the family that originally made its fortune from oil, announced that it would join a divestment coalition to rid itself of fossil fuel assets.[26]

Conclusion

In 2015, there are many opportunities to set the global energy sector on a low-carbon trajectory, to inject investment in renewable energy and to set clear targets. To make this happen, countries in Latin America and the Caribbean should:

- support low-carbon economic development as part of the post-2015 development framework, to be agreed in September 2015, and set ambitious renewable energy and energy efficiency goals at global and national levels
- mobilise action through an ambitious and fair global deal at the UN climate negotiations and COP21 in Paris, which should set the direction for a global low-carbon energy trajectory
- ensure that the UN GCF and the UN conference in 2015 on Finance for Development direct resources towards increasing use of renewable energy in the region
- make sure that subsidies for fossil fuel production and consumption are removed in the region to ensure a level playing field for low-carbon investment.

Detailed recommendations to Latin American and Caribbean governments

Governments in the region must rise urgently to the challenges presented by climate change by:

- **fully reformulating economic development strategies** to take into account equality, the imperative for a **low-carbon future** and access to sustainable energy for all
- **establishing a new development model to promote the reduction of energy consumption,** using energy efficiency and energy saving measures, and consider the environmental, social and economic consequences for those people directly or indirectly affected[27]
- **fostering the implementation of sustainable low-carbon technologies**
- **creating regulations to promote low- carbon development**, that will determine standards to be applied, and will include the participation of private sector actors to develop strategies, plans, programmes, projects and initiatives for low-carbon development
- **establishing an explicit policy framework** to bolster their weak institutional and technical capacity to achieve low-carbon development
- **decentralising national level structures** to ensure policy is informed by decision-making at all levels, particularly locally
- **broadening existing legal and regulatory mechanisms** for implementing renewable energy projects to increase the use of renewables and encourage low-carbon economic policies regionally
- **developing an energy planning process** to guide public authorities and the private sector when making decisions relating to low-carbon energy, and encourage energy savings and efficiency. Such a national energy vision is key for low-carbon development and has already been taken up by some countries in the region. For example, the Dominican Republic has set a target to source 25% of its energy use from renewables by 2025, and is fostering renewable energy generation from wind farms and solar plants
- **fulfilling national visions to implement low-carbon energy by establishing financial mechanisms**
- **ensuring meaningful inclusion of communities affected by large-scale land acquisitions** in discussions between state and private sector, and countries' compliance with international law related to this – for example, the International Labour Organization (ILO) Convention 169 on Indigenous and Tribal Peoples, which deals specifically with the right to free, prior and informed consent and consultation in relation to land acquisition.

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Micro-hydro plant in the Cochán district, Cajamarca, providing electricity to a remote community in Peru.

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